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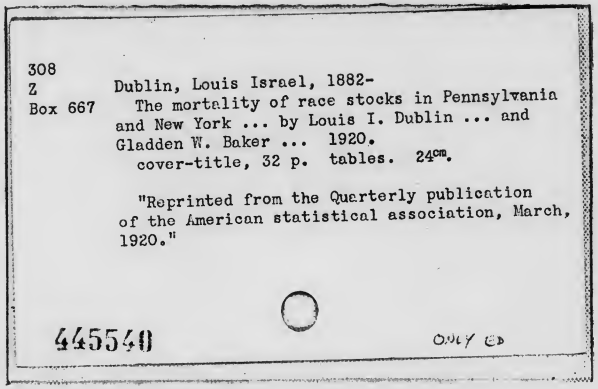

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CHADDOCK

The Mortality of Race Stocks in Pennsylvania and New York

Reprinted from the Quarterly Publication of the
AMERICAN STATISTICAL ASSOCIATION
March, 1920

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BY
LOUIS I. DUBLIN, Statistician, Metropolitan Life Insurance Co.,
AND
GLADDEN W. BAKER, School of Medicine, Yale University
1920

THE MORTALITY OF RACE STOCKS IN PENNSYLVANIA AND NEW YORK, 1910

By Louis I. Dublin, *Statistician, Metropolitan Life Insurance Co.*,
AND
Gladden W. Baker, *School of Medicine, Yale University*

OCT 19 1944 PCR

The United States offers an especially good opportunity to the demographer to study the comparative mortality of the principal European race stocks. In this country, a considerable proportion of the population is of foreign origin and the several races live together in close proximity in the large centers on the Eastern seaboard. The presence of these people in ever increasing numbers has undoubtedly had its effect in modifying the demography of the country. A study of the statistics, with due regard to race stocks, should show just what the effect of this immigration has been on the total mortality of the country. It is quite possible that certain disquieting features of the mortality in recent years, such as the increasing death rates after age 45, may be due largely to such immigration. Such study should, furthermore, throw considerable light on a question that is of great interest to the social economist, namely, whether residence in the United States has had any effect, favorable or otherwise, on the mortality of these race stocks since their arrival.

It was with such purposes in mind that one of the writers, several years ago, carried out an investigation* of the mortality of the more important races living in the state of New York. The results showed very clearly that the foreign stock suffered appreciably higher death rates than the native stock, that is, those of native parentage. Among the immigrant peoples, considerable diversity was found. The Russians, who are mostly Jews in New York State, and the Italians, showed remarkably low death rates, while persons of Irish and German birth suffered from very high death rates, and especially from pulmonary tuberculosis and the so-called degenerative diseases.

The results of this investigation were of such interest and significance that it has seemed desirable to amplify the study

* Dublin, Louis I., "Factors in American Mortality," *American Economic Review*, Vol. VI, No. 3, September, 1916.

of the problem by subjecting additional data to a similar analysis. Through the courtesy of the Director of the Census, Hon. Sam L. Rogers, to whom our thanks are due, it has been possible to obtain the necessary basic material for the state of Pennsylvania. This is a large industrial state with a high proportion of foreign stock. The absolute numbers of the foreign born are also large enough to warrant an analysis by the items of country of birth, age and sex. This paper will present the new facts in comparison with those previously published for New York State and will restate the combined results in the light of the additional evidence. We may note at this point that the findings in the two states completely confirm each other and remove all doubt as to the reliability of the earlier study.

The first table presents the structure of the population of Pennsylvania and New York with reference to nativity. Distinction is made between the native born by parentage and the foreign born by country of birth. It is possible to differentiate in the last group the following nationalities: Austro-Hungarians, Russians, Italians, Germans, British, and Irish; these are arranged in a descending order according to their

TABLE I

NUMBER AND PERCENTAGE DISTRIBUTION: (A) OF TOTAL WHITE POPULATION BY NATIVITY, PARENTAGE OF NATIVE BORN, AND COUNTRY OF BIRTH OF FOREIGN BORN; AND (B) OF TOTAL WHITE FOREIGN BORN, BY COUNTRY OF BIRTH. PENNSYLVANIA AND NEW YORK STATE, 1910

Population class	Pennsylvania			New York		
	(A)		(B)	(A)		(B)
Total white population	7,467,713	100.0	....	8,966,845	100.0	....
Native born	6,028,994	80.7	....	6,237,573	69.6	....
Native parentage	4,222,727	56.5	....	3,230,325	36.0	....
Foreign, mixed parentage	1,806,267	24.2	....	3,007,248	33.5	....
Foreign born	1,438,719	19.3	100.0	2,729,272	30.4	100.0
Austria-Hungary	375,271	5.0	26.1	341,836	3.8	12.5
Russia	240,980	3.2	16.7	558,952	6.2	20.5
Italy	196,122	2.6	13.6	472,192	5.3	17.3
Germany	195,185	2.6	13.6	436,874	4.9	16.0
Great Britain	170,356	2.3	11.8	193,359	2.2	7.1
Ireland	165,091	2.2	11.5	367,877	4.1	13.5
Other foreign born	95,714	1.3	6.7	358,182	4.0	13.1

proportionate representation in the population of Pennsylvania at the time of the 1910 census.

It is understood that the several designations of country of origin of the foreign born are not always indicative of race stocks, since a few countries include a number of different races. This is especially true of Austria-Hungary and Russia. As we shall see later, the composition of these groups is also somewhat different in Pennsylvania and New York.

We find in Pennsylvania that these six foreign groups together comprised 18.0 per cent of the total white population in 1910 and 93.3 per cent of all the foreign born; in New York, they constituted 26.4 per cent of the total white population and 86.9 per cent of all the foreign born. In these two states, accordingly, the foreign populations are sufficiently large to justify careful study in comparison with one another and with the native elements of the population.

The first step will be to compare the specific death rates in the states of Pennsylvania and New York of (A) the native born of native parentage, (B) the native born of foreign or mixed parentage, and (C) the foreign born. Table II presents the facts for each sex and by age periods.

An observation should be made before the figures for these three classes of the white population are compared. The foreign born are but lightly represented at the ages 1, 2, and 3 years, at which periods mortality rates are high. Lacking this component, the death rates for the foreign born under age 10 are not comparable with those of the other two groups of the population, which include a normal proportion at these earliest ages. Beginning with age 10, however, the figures for the three groups are comparable for all practical purposes.

The figures for both states are remarkably similar and bear out the following observations. At ages 10 to 19, the death rates are much the same for the three classes, with the single exception of the foreign born males, ages 15–19, in Pennsylvania, whose very high death rate is undoubtedly due to occupational hazards. But, beginning with age 20 and continuing throughout the rest of life, the rates for the native born of native parentage are decidedly the lowest of the three groups, the only exception being among the foreign born females in New

TABLE II

DEATHS PER 1,000 WHITE POPULATION AMONG (A) NATIVE BORN OF NATIVE PARENTAGE, (B) NATIVE BORN OF FOREIGN OR MIXED PARENTAGE, AND (C) FOREIGN BORN, BY SEX AND AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910*

Sex and age	Pennsylvania			New York		
	(A) *NB, NP*	(B) *NB, FMP*	(C) *FB*	(A) *NB, NP*	(B) *NB, FMP*	(C) *FB*
MALES						
All ages:						
Crude rate	14.2	21.2	16.4	15.9	18.7	17.2
Ages 10 and over:						
Crude rate	11.5	12.6	16.5	13.8	13.2	17.5
Standardized†	12.8	18.8	17.5	13.8	19.5	17.3
Under 10	22.6	38.2	11.5	23.5	31.0	8.4
10–14	2.3	2.6	2.6	2.5	2.2	2.5
15–19	3.3	4.1	6.1	3.6	4.1	4.4
20–24	4.9	6.2	7.3	5.0	6.8	5.2
25–44	6.2	12.3	9.1	6.9	14.3	8.7
45–64	16.8	25.7	25.9	18.8	28.2	28.0
65–84	75.2	91.4	91.5	77.3	89.9	90.4
85 and over	253.0	476.5	279.4	268.9	323.0	272.7
FEMALES						
All ages:						
Crude rate	12.7	17.3	16.7	13.9	14.7	16.3
Ages 10 and over:						
Crude rate	10.9	10.0	16.9	12.4	9.7	16.6
Standardized†	12.3	16.3	16.0	12.4	15.5	16.2
Under 10	18.6	32.6	10.8	19.6	27.0	8.2
10–14	2.3	2.2	2.2	2.6	2.1	2.4
15–19	3.3	3.1	3.7	3.2	3.2	3.2
20–24	4.2	5.4	5.0	4.7	5.2	4.0
25–44	5.8	8.5	7.4	5.7	9.3	7.3
45–64	14.4	18.1	21.4	14.3	20.0	23.4
65–84	66.6	86.0	86.7	68.2	73.9	87.7
85 and over	253.8	445.3	276.6	242.3	324.9	270.5

* Deaths in unspecified parentage and nativity groups distributed *pro rata* among specified nativity and parentage classes.
† Standardized for age distribution on basis of native born of native parentage, each sex, in New York State, 1910.

York, ages 20–24. The advantage of the native stock becomes greater with advancing age. A comparison of the two branches of the foreign stock shows a remarkable similarity in the death rates from age 10 onward. The one striking exception is at the ages 25–44, during which period the foreign born males have very much lower death rates than the native born of foreign parentage. The causes for this difference will be made evident later.

Perhaps the best single measure of the comparative mortality of the three classes is found in the standardized rates for the ages 10 and over. In this rate, the figures under 10, which, as we have seen, are incomparable, are eliminated from consideration. It indicates the mortality which would result for the class in question if its age distribution were the same as that of the native born of native parentage in New York State —the base used for standardizing rates throughout this paper. When thus considered, the superior vitality of the native stock is fully demonstrated as to both sexes; but the superiority of the males is more striking than that of the females. The presence of the foreign stock has, therefore, had the undoubted effect of increasing the total death rate in both these states, especially after age 45 is attained. In Pennsylvania, this fact has increased the crude rate from 13.4 deaths per 1,000 to 15.6; and in New York, from 14.9 to 16.1.

In general, the respective rates for Pennsylvania are lower than those for New York. The only significant exception is in the case of the foreign born males at ages 15 to 44. We shall see later that this results from occupational hazards in mines and mills which are more serious in Pennsylvania than in New York.

We shall now resolve the death rates of the "foreign born," as given in columns (C) of Table II, into the rates for the various nationality groups. This will indicate how the several elements of the foreign born compare with one another, and which ones are responsible for the unfavorable mortality of the group as a whole. Unfortunately, it is at present impossible to compare each foreign born group with the native born group of corresponding parentage, *e. g.*, the Russian born with the native born of Russian parentage. We shall be compelled to consider each foreign born race in comparison with the native born of native parentage.

AUSTRO-HUNGARIANS

We shall consider first the Austro-Hungarians, one of the six groups which together make up the bulk of the foreign born in Pennsylvania and in New York. Immigration to America from Austria-Hungary has become important only since 1890, although in recent years the Austro-Hungarians have been

one of the most numerous components of our immigration. In 1910, there were 375,271 Austro-Hungarians in Pennsylvania, constituting 26.1 per cent. of the foreign born whites and 5.0 per cent. of the total white population. They find employment in great numbers in the mills and mines and in other coarse manual labor. In New York State in 1910, this element of the foreign born was not so large proportionately. There were 341,846 Austro-Hungarians in New York, which was 12.5 per cent. of the foreign born whites and 3.8 per cent. of the total white population.

This nationality is, of course, heterogeneous as to race stock, containing large proportions of Jews, Germans, Southern Slavs, and Poles.* In Pennsylvania, persons recorded as born in Austria-Hungary are largely Slovaks, Magyars, and Slovenians, while in New York a large portion of the Austro-Hungarians are Jews. Table III shows the death rates for Austro-Hungarians in Pennsylvania and New York, respectively, distinguished as to sex and age period.

The first two age periods must be disregarded because of the paucity of data. In Pennsylvania, we find that for each sex and at every age period from 15 to 64, the rates for Austro-Hungarians are much higher than for the natives. This same characteristic remains when the rates are standardized for age. In New York State, the rates for the two groups run nearly parallel to each other, with slight fluctuations in the various age periods. When standardized, the Austro-Hungarian rates are virtually the same as those for native stock. We shall see later that these differences in the two states are largely accounted for by the differences in the hazards of occupation.

The death rates for Austro-Hungarians in Pennsylvania and in New York may be compared with figures for corresponding groups in their native country. The facts are available for each of the two main divisions of the former Empire, Austria and Hungary, separately.† On the whole, the rates are higher

* Deaths of Poles given separately in census returns were distributed among Russians, Austro-Hungarians, and Germans, according to the percentages of all persons of Polish mother tongue in Pennsylvania and New York (census of 1910) who had come from the respective countries.

† *Annuaire International de Statistique:* I. Etat (pp. 55, 57), and II. Mouvement (pp. 80, 92) de la Population (Europe). La Hague, 1916–17.

TABLE III

DEATHS PER 1,000 WHITE POPULATION AMONG PERSONS BORN IN AUSTRIA-HUNGARY AND AMONG NATIVE BORN OF NATIVE PARENTAGE, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	Pennsylvania		New York	
	Native born of native parentage	Austro-Hungarian born	Native born of native parentage	Austro-Hungarian born
MALES				
All ages:				
Crude rate	14.2	9.7	15.9	9.3
Ages 10 and over:				
Crude rate	11.5	9.7	13.8	9.4
Standardised rate	12.8	14.4	13.8	14.3
Under 10	22.6	11.6	23.5	7.4
10–14	2.3	3.0	2.5	2.8
15–19	3.3	5.5	3.6	4.1
20–24	4.9	7.1	5.0	4.3
25–44	6.2	8.5	6.9	6.7
45–64	16.8	22.3	18.8	21.0
65–84	75.2	63.9	77.3	77.5
85 and over	253.0	181.8	268.9	301.6
FEMALES				
All ages:				
Crude rate	12.7	8.0	13.9	7.4
Ages 10 and over:				
Crude rate	10.9	7.7	12.4	7.3
Standardised rate	12.3	13.5	12.4	12.4
Under 10	18.6	12.3	19.6	8.2
10–14	2.3	1.7	2.6	1.6
15–19	3.3	4.0	3.2	2.0
20–24	4.2	5.9	4.7	3.5
25–44	5.8	7.1	5.7	5.8
45–64	14.4	16.7	14.3	18.2
65–84	66.6	75.5	68.2	63.9
85 and over	253.8	114.3	242.3	213.5

in Austria and in Hungary than among their emigrants living in this country. Thus, in the years 1908–13, males aged 25–44 had death rates of 8.8 and 8.9 per 1,000 in Austria and Hungary, respectively, as compared with 8.5 and 6.7 for Austro-Hungarians living in Pennsylvania and in New York; at ages 45–64, the corresponding rates were 24.2 for Austrians, 23.4 for Hungarians, and 22.3 and 21.0 for Austro-Hungarians in Pennsylvania and New York, respectively. The advantage of Austro-Hungarians in America is apparent, in spite of their occupational hazards which often result in death from accident, especially in Pennsylvania. The conditions are very similar for females.

TABLE IV

DEATH RATES OF WHITE PERSONS BORN IN THE UNITED STATES, FOR THE PRINCIPAL CAUSES OF DEATH, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	All causes		Tuberculosis of lungs		Cancer		Organic heart diseases		Pneumonia		Bright's disease		Violence excl. suicide	
	Rate per 1,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000	
	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.
MALES														
All ages	16.1	17.1	105.1	170.9	40.3	46.5	114.5	139.1	175.5	203.8	75.4	93.6	113.0	99.2
Under 10 ...	28.4	27.7	23.3	23.4	1.9	3.4	24.5	22.7	412.1	467.6	8.9	8.5	86.7	90.2
10–14	2.4	2.3	11.2	10.2	1.5	1.8	19.8	26.9	14.9	17.9	5.5	6.4	59.6	43.3
15–19	3.5	3.8	61.1	101.5	2.6	3.1	23.1	34.1	27.9	33.2	7.7	5.6	91.3	62.9
20–24	5.2	5.8	147.6	216.3	5.3	6.1	25.8	26.8	26.6	42.0	14.4	15.2	118.7	96.9
25–44	7.6	10.1	185.2	352.0	14.9	18.6	51.1	65.0	57.0	92.1	42.3	64.7	128.3	110.0
45–64	18.5	22.1	174.1	262.1	134.5	150.0	232.5	316.3	166.0	189.6	205.5	267.2	151.1	128.9
65–84	76.4	78.7	189.3	161.4	451.4	533.6	1472.7	1693.7	498.2	607.6	842.5	952.2	250.5	233.5
85 and over .	273.2	271.1	60.0	69.3	869.6	900.7	4377.8	4873.0	1739.1	1824.5	1919.0	2355.7	839.6	970.0
Unknown...	....	....	....	....	....	....	....	....	....	....	....	....	....	....
FEMALES														
All ages	14.0	14.3	98.8	109.6	72.8	81.0	106.4	123.3	143.4	168.1	62.7	78.1	37.9	34.9
Under 10 ...	23.8	23.7	19.1	20.6	2.8	2.2	22.7	20.9	333.1	396.6	7.8	7.4	64.9	55.1
10–14	2.2	2.3	19.3	27.1	1.8	2.7	26.4	29.8	16.0	20.3	8.0	7.4	11.4	10.6
15–19	3.2	3.2	91.5	111.5	2.6	3.9	21.7	25.5	14.0	22.4	8.6	8.8	14.0	11.5
20–24	4.5	4.9	162.3	186.3	1.4	4.0	22.1	29.1	20.3	21.7	16.1	15.4	12.5	15.1
25–44	6.5	7.4	172.8	193.3	41.4	50.9	47.7	61.8	35.9	54.2	38.5	59.2	13.2	14.5
45–64	15.2	16.6	108.9	111.1	251.0	287.4	220.8	247.1	119.4	130.3	155.9	208.6	29.0	28.8
65–84	68.7	68.7	178.7	137.9	649.1	668.4	1167.5	1369.3	607.8	683.4	606.9	680.9	193.9	193.8
85 and over .	271.3	248.2	100.9	32.6	827.1	896.2	3389.1	3992.2	2077.9	2362.7	1573.5	1694.6	1452.5	1319.9
Unknown...	....	....	....	....	....	....	....	....	....	....	....	....	....	....

TABLE V

DEATH RATES OF PERSONS BORN IN AUSTRIA-HUNGARY, FOR THE PRINCIPAL CAUSES OF DEATH, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	All causes		Tuberculosis of lungs		Cancer		Organic heart diseases		Pneumonia		Bright's disease		Violence excl. suicide	
	Rate per 1,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000	
	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.
MALES														
All ages	9.7	9.3	118.0	166.0	31.9	64.9	57.0	86.4	90.9	80.7	37.5	92.0	341.6	121.4
Under 10 ...	11.6	7.4	13.8	16.7	....	16.7	13.8	....	193.3	167.3	....	16.7	110.5	100.4
10–14	3.0	2.8	35.5	14.1	....	....	17.7	28.3	....	14.1	17.7	....	70.9	113.1
15–19	5.5	4.1	55.4	102.4	6.2	7.3	12.3	29.3	61.6	43.9	6.2	14.6	270.9	102.4
20–24	7.1	4.3	108.5	93.1	2.3	14.3	11.6	17.9	53.3	32.2	6.9	3.6	335.8	139.7
25–44	8.5	6.7	110.6	177.2	16.0	20.3	44.6	49.1	70.6	43.8	17.3	35.2	357.1	119.5
45–64	22.3	21.0	264.2	302.5	168.5	259.8	203.0	244.3	280.4	228.8	199.1	298.6	425.1	112.5
65–84	63.9	77.5	242.7	247.9	809.1	779.0	1132.7	1062.3	485.4	566.6	809.1	1628.9	566.3	283.3
85 and over .	181.8	301.6	....	....	....	1587.3	....	4761.9	4545.5	3174.6	4545.5	4761.9	9090.9	....
Unknown...	....	....	....	....	....	....	....	....	....	....	....	....	....	....
FEMALES														
All ages	8.0	7.4	130.2	102.6	48.2	83.8	67.5	77.1	71.5	68.6	37.0	67.4	29.7	23.1
Under 10 ...	12.3	8.2	27.4	....	....	....	27.4	16.6	178.3	199.6	....	....	96.0	33.3
10–14	1.7	1.6	17.3	13.7	....	....	....	41.1	17.3	13.7	17.3	....	....	....
15–19	4.0	2.0	74.2	49.6	....	4.5	16.5	4.5	41.2	18.0	8.2	4.5	16.5	18.0
20–24	5.9	3.5	141.2	87.9	12.1	3.0	12.1	30.3	90.5	24.3	8.1	12.1	36.3	9.1
25–44	7.1	5.8	152.7	137.2	38.2	46.6	57.3	43.9	55.7	43.9	28.6	37.0	20.7	17.8
45–64	16.7	18.2	162.3	122.9	229.2	393.4	191.0	221.3	105.0	172.1	210.1	241.0	9.5	49.2
65–84	75.5	63.9	215.7	142.1	970.9	745.0	2265.3	1136.8	970.9	639.4	215.7	852.6	539.4	177.6
85 and over .	114.3	213.5	....	....	....	1123.6	....	3370.8	....	2247.2	....	5618.0	....	....
Unknown...	....	....	....	....	....	....	....	....	....	....	....	....	....	....

General death rates such as we have just noticed are after all but a composite of the rates for the individual causes of death. It is instructive, therefore, to consider the above findings as to the mortality of persons born in Austria-Hungary and living in Pennsylvania and in New York in the light of the principal diseases and conditions causing death. It is necessary, unfortunately, to compare the facts for each of the foreign born nationalities with the corresponding figures for the entire group of the native born without distinction of parentage (Table IV). As compared with these rates, we have the figures (Table V) for persons born in Austria-Hungary and residing in Pennsylvania and in New York.

On examining the causes of death among the Austro-Hungarians, we find that in each state their rates from pulmonary tuberculosis are lower than those for the native born at ages 20 to 44, while at 45–64 they are higher. This observation holds for both sexes. For males in both states and for females in New York, natives of Austria-Hungary show higher cancer rates at ages 45 to 84 than do native Americans, while exactly the reverse is true for organic heart diseases. In New York, rates for Bright's disease are higher at ages 45 to 84 among Austro-Hungarians of both sexes than among the native born.

The most important cause of death among Austro-Hungarian males in Pennsylvania is violence (excluding suicide). This may be attributed to the perilous and unskilled occupations in which these immigrants engage. Throughout the entire working period of life (15 to 64), the death rates among Austro-Hungarians from this cause are about three times as high as among natives.

RUSSIANS

Next in importance among the foreign born in Pennsylvania are the Russians. These, too, are comparatively recent immigrants to this country, but they have increased by leaps and bounds since 1890. In 1910, there were in Pennsylvania 240,980 persons born in Russia, forming 16.7 per cent of the total foreign born whites and 3.2 per cent of the total white population. In New York State, there were, in 1910, 558,952 Russian born persons, constituting 20.5 per cent of the foreign born and 6.2 per cent of the total white population.

Here, too, we are dealing with a heterogeneous group which includes a large proportion of Jews as well as Poles and true Russians. Of all the Russian immigrants to the United States in the period 1899–1910, 43.8 per cent were Jews, and it is very probable that a much larger proportion of the Russians in New York State in 1910 were Jews. This is an important point to keep in mind, because the Jews usually show a lower mortality than the races among which they live. This fact has been reported independently by many observers. With the restriction in mind, then, that our figures for Russians are really for a group composed mainly of Jews, we present Table VI for the states of Pennsylvania and New York, 1910:

TABLE VI

DEATHS PER 1,000 WHITE POPULATION AMONG PERSONS BORN IN RUSSIA, AND AMONG NATIVE BORN OF NATIVE PARENTAGE, BY SEX AND BY AGE PERIOD; PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	Pennsylvania		New York	
	Native born of native parentage	Russian born	Native born of native parentage	Russian born
MALES				
All ages:				
Crude rate	14.2	9.3	15.9	7.5
Ages 10 and over:				
Crude rate	11.5	9.3	13.8	7.7
Standardised rate	12.8	13.7	13.8	13.1
Under 10	22.6	9.7	23.5	4.4
10–14	2.3	2.0	2.5	1.6
15–19	3.3	5.1	3.6	2.6
20–24	4.9	8.1	5.0	3.8
25–44	6.2	8.0	6.9	5.1
45–64	16.8	21.6	18.8	20.1
65–84	75.2	61.7	77.3	78.4
85 and over	253.0	216.2	268.9	255.8
FEMALES				
All ages:				
Crude rate	12.7	7.3	13.9	6.6
Ages 10 and over:				
Crude rate	10.9	7.1	12.4	6.8
Standardised rate	12.3	12.7	12.4	12.3
Under 10	18.6	9.9	19.6	3.7
10–14	2.3	2.3	2.6	1.4
15–19	3.3	2.9	3.2	1.8
20–24	4.2	4.1	4.7	2.9
25–44	5.8	6.3	5.7	5.3
45–64	14.4	14.1	14.3	16.0
65–84	66.6	68.8	68.2	69.8
85 and over	253.8	317.1	242.3	257.8

Disregarding the figures for the period under 10, we find that in Pennsylvania, Russian males reflect the serious hazards under which they work. Their death rates are much higher than those for the native born of native parentage at ages 15 to 64; females of the two groups in Pennsylvania do not show this difference so markedly. In New York, on the other hand, the death rates for Russians of both sexes are appreciably lower than those for the native stock at ages 10 to 44. Similar differences are observed when we consider the standardized rates for age 10 and over, the rates per 1,000 Russian males in Pennsylvania and New York being 13.7 and 13.1, respectively, as compared with 12.8 and 13.8 for the native stock.

Table VII presents death rates of Russian born persons in Pennsylvania and New York by the principal causes of death.

There is a much lower mortality from pulmonary tuberculosis among Russians than among the native born. In the age period 25–44, for example, Russian males in New York had a tuberculosis rate of 117.1 per 100,000, as against 352.0 among the native born; for Russian females, the rate was 104.7 as against 193.3. The direct relationship between the low tuberculosis mortality and the large representation of Jews among the Russian born is unmistakable. This conclusion agrees with the work of others who have studied the mortality from tuberculosis among Jews in other countries.

The cancer rate is higher among Russian males in New York in the period 45–64, the rates being 277.5 as against 150.0 per 100,000 for the native born. Russian females in Pennsylvania have a cancer rate of 326.0 at 45–64, as contrasted with 251.0 for natives, and at 65–84 a rate of 1161.8 against 649.1 for the native born. In both sexes at age periods 45 to 84, the mortality from pneumonia (all forms) is greater among Russians than for native Americans. Thus, Russian males in Pennsylvania have a pneumonia rate at 45–64 of 237.2, while that for the natives is but 166.0. In New York, the corresponding figures are 228.2 and 189.6, for the Russians and native born, respectively.

Very high rates from violence are found among Russian males in Pennsylvania; in fact, they are close to three times as

TABLE VII

DEATH RATES OF PERSONS BORN IN RUSSIA, FOR THE PRINCIPAL CAUSES OF DEATH, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	All causes		Tuberculosis of lungs		Cancer		Organic heart diseases		Pneumonia		Bright's disease		Violence excl. suicide	
	Rate per 1,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000	
	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.
Males														
All ages	9.3	7.5	107.4	114.7	43.1	69.0	65.0	78.9	84.2	81.2	53.4	65.4	288.1	68.7
Under 10	9.7	4.4	15.4	23.5	....	....	15.4	5.9	138.8	70.4	30.9	5.9	61.7	70.4
10–14	2.0	1.6	....	11.7	....	....	16.6	29.2	16.6	17.5	16.6	11.7	66.3	35.0
15–19	5.1	2.8	69.6	60.5	....	....	....	30.3	49.7	11.3	9.0	3.8	238.5	30.3
20–24	5.1	2.8	99.6	90.6	4.0	13.5	15.9	11.3	74.6	39.6	4.0	5.6	234.5	84.3
25–44	8.0	5.1	105.9	117.1	31.2	34.3	30.9	40.4	67.3	51.2	34.9	24.2	312.9	65.3
45–64	21.6	20.1	225.1	246.4	468.6	277.5	279.8	254.2	237.2	228.2	170.3	238.6	384.6	180.4
65–84	61.7	59.4	248.1	152.4	446.1	1026.0	517.5	1224.2	590.4	1015.2	1115.2	1329.6	927.4	2925.6
85 and over	216.2	255.8	....	....	....	....	....	5426.4	2702.7	1550.4	5405.4	4651.2	....	2325.6
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Females														
All ages	7.3	6.6	91.7	74.6	67.5	69.5	65.4	85.2	67.5	60.1	38.0	72.3	38.0	24.3
Under 10	9.9	3.7	31.3	....	....	....	15.7	11.9	203.6	83.3	....	....	47.0	35.7
10–14	2.3	1.4	....	5.7	....	....	16.5	40.1	16.5	22.9	16.5	....	16.5	11.5
15–19	2.9	1.8	70.9	28.0	....	3.1	10.1	9.3	10.1	15.5	20.2	20.5	40.5	15.5
20–24	4.1	2.3	98.6	78.2	15.8	15.5	40.5	20.3	55.3	31.4	20.9	11.4	82.0	18.4
25–44	6.3	5.3	106.0	104.7	32.2	55.3	45.3	43.6	55.1	33.1	26.9	31.0	32.2	43.5
45–64	14.1	16.0	124.6	80.8	326.0	286.1	103.0	239.4	134.2	188.6	115.0	276.7	67.5	97.7
65–84	49.8	69.8	178.7	94.3	1161.8	613.2	1275.0	1467.5	1340.5	1025.6	1277.8	2243.8	208.1	1462.8
85 and over	317.1	287.6	....	....	4878.0	....	4878.0	4687.5	4878.0	2403.9	....	....	....	1462.8
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....

high as for the native born. In New York, the rates from violence are low among Russian born. We see here the effect of different industrial conditions.

There are no recent authentic figures of mortality for persons living in Russia and, therefore, no comparisons can be made between them and Russians living in the United States.

ITALIANS

Italians in America are much more homogeneous than the Austro-Hungarians or Russians. According to the 1910 census, the number of persons of Italian birth in Pennsylvania was 196,122. This was 13.6 per cent of the foreign born white and 2.6 per cent of the total white population in the state. In New York, Italian born persons numbered 472,192, constituting 17.3 per cent of the foreign born whites and 5.3 per cent of the total white population. The bulk of Italian immigration into America has been since 1890.

Table VIII presents the death rates of Italian born persons living in Pennsylvania and New York compared with the rates for the native stock.

Beginning with age 15 and continuing through 64, the death rates for Italian born males and females are higher than those for the native stock, the single exception being in the case of males in New York at ages 25–44. This Italian excess is especially marked in Pennsylvania, due probably to conditions under which they work. It is interesting to observe that Italian females in New York State show, from ages 10 to 44, a higher mortality than the males, and the facts are similar among Italians in their own country. The standardized rates at ages 10 and over indicate that, except for males in New York State, persons of Italian birth have slightly higher mortality rates than the native born of native parents.

Among Italian males in both states, the most important cause of death is violence (excluding suicide). This fact alone is sufficient to account for the unfavorable conditions among Italian males in Pennsylvania; at every age period from 15 to 64, their rates are from two and one-half to three times higher than for native Americans. The excess among Italians in New York at these ages is much less. These relations are clearly shown in Table IX in conjunction with Table IV.

TABLE VIII

DEATHS PER 1,000 WHITE POPULATION AMONG PERSONS BORN IN ITALY, AND AMONG NATIVE BORN OF NATIVE PARENTAGE, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	Pennsylvania		New York	
	Native born of native parentage	Italian born	Native born of native parentage	Italian born
MALES				
All ages:				
Crude rate	14.2	9.8	15.9	9.2
Ages 10 and over:				
Crude rate	11.5	9.7	13.8	9.0
Standardised rate	12.8	14.5	13.8	12.9
Under 10	22.6	11.5	23.5	13.1
10–14	2.3	3.5	2.5	2.7
15–19	3.3	8.3	3.6	5.5
20–24	4.9	7.7	5.0	6.2
25–44	6.2	8.1	6.9	6.6
45–64	16.8	19.7	18.8	19.3
65–84	75.2	71.3	77.3	64.6
85 and over	253.0	100.0	268.9	120.3
FEMALES				
All ages:				
Crude rate	12.7	9.0	13.9	9.7
Ages 10 and over:				
Crude rate	10.9	8.8	12.4	9.5
Standardised rate	12.3	12.6	12.4	13.7
Under 10	18.6	11.3	19.6	12.7
10–14	2.3	2.0	2.6	3.4
15–19	3.3	5.1	3.2	5.7
20–24	4.2	5.3	4.7	6.1
25–44	5.8	7.9	5.7	7.0
45–64	14.4	14.6	14.3	17.9
65–84	66.6	60.9	68.2	63.8
85 and over	253.8	176.5	242.3	214.3

Italian males in both states between ages 20 and 64 are at a decided advantage as to pulmonary tuberculosis. Among the women in New York State, however, conditions are quite different at the younger ages. For example, at ages 15–19 and 20–24, the death rates from pulmonary tuberculosis are 220.6 and 247.7 among Italian women, as contrasted to 111.5 and 186.3, respectively, among native American women. In respect to organic diseases of the heart, men show lower rates at the important ages 25 to 84. This is again in contrast to conditions among women, who, at ages 45 to 84, compare unfavorably with native Americans. Pneumonia, all forms,

TABLE IX

DEATH RATES OF PERSONS BORN IN ITALY, FOR THE PRINCIPAL CAUSES OF DEATH, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	All causes		Tuberculosis of the lungs		Cancer		Organic heart diseases		Pneumonia		Bright's disease		Violence (excl. suicide)	
	Rate per 1,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000	
	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.
MALES														
All ages	9.8	9.2	81.5	112.1	26.2	31.9	51.7	79.5	135.4	153.4	29.8	54.3	311.5	158.4
Under 10	11.5	13.1	19.9	8.3	....	....	19.9	....	198.8	364.5	19.9	7.6	99.7	174.9
10–14	8.3	5.2	19.9	15.7	....	....	17.4	22.7	99.4	97.6	....	....	99.7	83.0
15–19	8.3	5.5	43.4	106.8	....	....	17.4	15.8	130.2	71.2	26.0	13.0	364.7	162.2
20–24	7.7	6.2	98.5	140.4	13.9	6.5	11.6	10.8	110.1	85.5	....	31.5	342.0	170.6
25–44	9.1	7.7	77.2	102.1	13.1	15.4	31.5	41.2	130.5	111.8	13.5	21.0	335.3	155.4
45–64	10.7	9.3	154.3	172.9	127.4	124.2	161.0	250.8	348.8	394.5	127.4	172.9	335.3	168.0
65–84	71.3	64.6	631.8	208.5	631.8	364.9	1263.5	1303.1	722.0	1198.9	722.0	807.9	90.3	156.4
85 and over	100.0	130.3	....	....	....	....	200.0	2235.6	....	....	....	751.9	....	1065.8
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....
FEMALES														
All ages	9.0	9.7	102.2	160.1	66.4	57.8	93.6	134.9	103.9	145.6	51.1	65.3	30.6	32.1
Under 10	11.3	12.7	42.0	84.0	21.0	42.0	8.5	209.8	391.4	....	....	....	83.9	153.2
10–14	5.0	3.7	....	99.3	....	49.6	43.0	99.3	99.3	99.1	....	....	49.6	24.8
15–19	5.1	5.4	102.0	220.6	....	61.2	30.1	61.2	61.2	50.1	10.0	20.4	20.4	25.1
20–24	5.3	6.1	153.6	247.7	153.8	23.6	60.9	35.4	87.7	47.2	23.6	6.8	10.5	20.4
25–44	7.6	7.7	147.7	158.3	55.4	239.8	73.9	73.9	258.5	221.5	36.9	36.9	....	41.1
45–64	14.6	17.0	172.2	128.1	209.0	209.0	209.0	373.4	181.3	253.7	168.4	211.5	13.0	45.8
65–84	60.9	63.8	217.3	55.4	326.1	274.9	1413.0	1649.3	760.9	1429.4	978.3	549.8	....	55.0
85 and over	176.5	214.3	....	793.7	....	....	2941.2	3968.3	....	3968.3	....	4761.9	....	....
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....

is especially prominent among Italians. In practically every age period from 20 to 84, their rates are higher than those of the native.

Italians in Pennsylvania and New York State show, on the whole, little difference in their death rates from those prevailing in their home country. A slight excess, which is apparent at some age periods in the American figures for Italian males, is very likely the result of the hazardous employment in which they are engaged. It is interesting, also, to note that the death rates from pneumonia in Italy are lower than among Italians in this country at ages 25 to 64 for males and females.*

GERMANS

In the three foreign born groups thus far examined (Austro-Hungarians, Russians, and Italians), we have found mortality conditions which, when compared with those for the native born, are, on the whole, favorable, except in so far as the greater industrial hazards to which these foreign groups are exposed operate to increase their mortality from accidental violence. We come now to the consideration of three groups of the foreign born whose position relative to the native born is very unfavorable, even apart from deaths from accident: the Germans, British, and Irish. Their death rates in the United States are in each case less favorable than in their native land. Of these three groups, those of German birth were of the greatest relative importance in Pennsylvania and New York. In Pennsylvania, they numbered 195,185, constituting 13.6 per cent of the foreign born white and 2.6 per cent of the total white population; and, in New York State, they were represented by 436,874 persons, being 16.0 per cent of the foreign born white and 4.9 per cent of the total white population. The Germans were one of the most important elements of the earlier immigration into the United States. From 1850 to 1870, they formed the second largest component of the foreign born population in this country, being exceeded only by the Irish; and from 1880 onwards they have occupied the first rank at each census. Table X presents death rates for German born persons living in Pennsylvania and New York, by sex and age period, 1910.

* Ufficio Centrale di Statistica, *Statistica Della Cause di Morte*, Rome, 1914, p. 44 *et seq.*

TABLE X

DEATHS PER 1,000 WHITE POPULATION AMONG PERSONS BORN IN GERMANY, AND AMONG NATIVE BORN OF NATIVE PARENTAGE, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	Pennsylvania		New York	
	Native born of native parentage	German born	Native born of native parentage	German born
Males				
All ages: Crude rate	14.2	28.2	15.9	27.5
Ages 10 and over: Crude rate	11.5	28.4	13.8	27.7
Standardized rate	12.8	17.0	13.8	17.9
Under 10	22.6	13.3	23.5	12.7
10–14	2.3	3.0	2.5	5.8
15–19	3.3	4.1	3.6	3.4
20–24	4.9	8.2	5.0	4.5
25–44	6.2	9.0	6.9	10.0
45–64	16.8	23.0	16.8	27.7
65–84	75.2	93.7	77.3	90.4
85 and over	253.0	284.7	268.9	263.4
Females				
All ages: Crude rate	12.7	23.5	13.9	22.6
Ages 10 and over: Crude rate	10.9	23.8	12.4	22.8
Standardised rate	12.3	14.2	12.4	14.4
Under 10	18.6	9.4	19.6	10.3
10–14	2.3	1.5	2.6	1.6
15–19	3.3	3.5	3.2	2.7
20–24	4.2	4.4	4.7	4.0
25–44	5.8	6.4	5.7	6.3
45–64	14.4	18.5	14.3	18.4
65–84	66.6	77.8	68.2	83.1
85 and over	253.8	279.0	242.3	246.4

Because of the reduction of German immigration in recent years, it is necessary to begin with ages 25–44. The rates are very much higher than for the native stock, and this condition continues throughout life. Considering together ages 10 and over, the rates, when standardized for age as above outlined, are, for males, 17.0 and 17.9 in Pennsylvania and New York, respectively, against 12.8 and 13.8 for the native stock; and for females 14.2 in Pennsylvania and 14.4 in New York, as contrasted to 12.3 and 12.4, respectively, for the native stock. The rates for Germans in both states are thus distinctly higher than the rates for the natives, the excess being more marked for males than for females.

The rates for Germans at home are more favorable than for Germans in this country. Thus, the death rate for males in Germany at 25–44 was 6.4 per 1,000 in 1908–13,* as against 9.0 and 10.0 for Germans in Pennsylvania and New York, respectively, in 1910; at 45–64 German males at home showed a rate of 21.3 per 1,000, contrasted with 23.0 and 27.7 in Pennsylvania and New York; while at ages 65–84, their rate in Germany was 84.5 as compared with 93.7 and 90.4 in the two states. Among females, the German excess in this country is less marked.

In seeking to determine the causes for the high mortality of Germans in America, we find (Table XI) that the pulmonary affections and the so-called "degenerative" diseases are to a large degree responsible.

At most of the age periods, the rates for pulmonary tuberculosis among German males are greatly in excess of those of native Americans; for example, at ages 45–64, there are mortality rates of 230.3 and 350.0 per 100,000 among Germans in Pennsylvania and New York from this cause; while the corresponding rates for native born males are 174.1 in Pennsylvania and 262.1 in New York. The position of the German born women with regard to pulmonary tuberculosis is very favorable.

The incidence of pneumonia is high among persons of German birth in both states, their disadvantage from this cause being especially marked at ages 65–84. For example, at this period in life the rates per 100,000 German males in Pennsylvania and New York are 917.2 and 806.6, respectively, as contrasted with 498.2 and 607.6 for native born males. Cancer is more frequent as a cause of death among German males at ages 45 to 84, and among German females at ages 25 to 84. The differences are strikingly large among males; at ages 45–64, for example, the cancer mortality per 100,000 German males is 251.0 and 291.3 in Pennsylvania and New York, respectively, while that of natives is but 134.5 in Pennsylvania and 150.0 in New York. Almost without exception, the rates for organic heart disease and Bright's disease among German born persons, of both sexes, living in Pennsylvania and New York, are higher

* Institut International de Statistique, *Annuaire International de Statistique:* I. Etat (p. 45), and II. Mouvement (p. 75) de la population (Europe). La Hague, 1916–17.

TABLE XI

DEATH RATES OF PERSONS BORN IN GERMANY, FOR THE PRINCIPAL CAUSES OF DEATH, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	All causes		Tuberculosis of lungs		Cancer		Organic heart diseases		Pneumonia		Bright's disease		Suicides	
	Rate per 1,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000	
	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.
MALES														
All ages	28.2	27.5	194.9	267.4	186.7	222.1	433.8	419.3	263.4	254.9	300.4	334.9	80.0	91.9
Under 10	13.3	12.7	147.9	....	....	....	....	....	74.0	423.1	....	....	74.4	....
10–14	3.0	3.6	....	66.8	....	....	45.4	158.4	45.4	....	....	193.3	....	....
15–19	4.1	3.4	....	50.3	....	....	....	....	42.3	45.9	....	221.7	....	38.7
20–24	8.2	4.5	211.3	45.9	....	42.3	42.3	....	42.3	45.9	42.3	67.2	95.3	38.7
25–44	9.0	17.0	196.2	252.5	101.7	90.4	272.3	225.9	212.5	249.0	230.3	332.4	95.6	131.6
45–64	23.0	27.0	290.2	293.0	211.0	232.6	1841.1	1903.5	917.2	806.6	1272.1	1906.7	140.6	137.4
65–84	93.7	90.4	140.6	211.3	580.2	732.6	3783.8	5374.1	1801.8	1866.7	1962.0	3582.7	180.2	316.1
85 and over	284.7	263.4	190.2	210.7	....	737.6	....	....	....	....	....	....	....	....
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....
FEMALES														
All ages	23.5	22.6	90.4	115.3	256.4	264.5	379.8	306.8	214.9	205.0	210.7	274.4	20.2	22.2
Under 10	9.4	10.3	....	51.7	....	....	72.6	63.6	145.2	155.0	....	....	....	....
10–14	1.5	1.6	39.1	....	....	....	72.6	31.8	....	....	....	19.2	....	19.2
15–19	3.5	3.4	76.9	76.9	....	79.1	....	79.1	38.4	....	....	7.9	....	31.6
20–24	4.4	4.0	128.0	158.2	18.3	15.8	18.3	15.8	15.8	44.8	18.3	43.6	14.0	15.0
25–44	6.4	6.3	106.2	125.1	88.7	81.4	69.8	49.1	30.7	157.6	33.5	245.2	27.9	27.1
45–64	15.5	13.4	151.5	168.2	351.0	267.7	993.5	760.5	782.4	840.1	729.4	1223.3	33.2	33.2
65–84	77.8	83.1	72.9	106.3	709.5	773.7	1472.1	1766.5	782.4	840.1	729.4	1223.3	33.2	80.3
85 and over	279.0	246.4	156.7	80.3	156.7	833.8	3507.8	4574.6	3664.6	2728.7	2664.6	1765.7	156.7	....
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....

from ages 25 onward than are the corresponding rates for native born Americans. Suicide is also an important cause of death among German males—an observation already made by a number of writers relative to Germans in their own country, and the rates are much in excess of those for the native stock.

ENGLISH, SCOTCH, WELSH (BRITISH)

Persons of British nativity were an important component of the earlier immigration into the United States, although in recent years they have been a very small part of the stream of newcomers. In 1850, they constituted 16.9 per cent of the total foreign born, but have declined in relative importance until in 1910 they were only 9.0 per cent. In Pennsylvania at the 1910 census, there were 170,356 persons born in Great Britain, or 11.8 per cent of the white foreign born, and 2.3 per cent of the total white population. In New York, they numbered 193,359, or 7.1 per cent of the foreign born and 2.2 per cent of the total white population.

The group as a whole shows high death rates when compared with the native stock. This is true of both males and females and in both states. At the ages 25 to 64, the disadvantage against the British is nearly 50 per cent. The standardized rates after age 10 are better in Pennsylvania than in New York, but even in the former state the advantage of the natives is considerable. The figures are given in Table XII.

It is difficult to understand this condition of unfavorable mortality in view of the fact that the rates for the British in their own country are among the most favorable in Europe. In the last censal year (1911), the death rate per 1,000 males aged 25–44 in England and Wales* was 6.4, as against 8.4 and 8.7 for British born males living in Pennsylvania and New York, respectively; at 45–64, British males at home showed a rate of 20.5 per 1,000, compared with 24.0 in Pennsylvania and 24.6 in New York. The conditions among females are similar.

The causes of death (Table XIII) which are responsible for the unfavorable position of the British in the United States as compared with the native born are many.

*Seventy-fourth Annual Report of the Registrar-General for England and Wales (1911), pp. 61, 62.

TABLE XII

DEATHS PER 1,000 WHITE POPULATION AMONG PERSONS BORN IN ENGLAND, SCOTLAND, AND WALES, AND AMONG NATIVE BORN OF NATIVE PARENTAGE, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	Pennsylvania		New York	
	Native born of native parentage	English, Scotch and Welsh born	Native born of native parentage	English, Scotch and Welsh born
MALES				
All ages:				
Crude rate	14.2	21.5	15.9	21.8
Ages 10 and over:				
Crude rate	11.5	21.8	13.8	22.6
Standardized rate	12.8	16.1	13.8	16.6
Under 10	22.6	11.0	23.5	7.0
10–14	2.3	2.7	2.5	3.7
15–19	3.3	4.4	3.6	5.8
20–24	4.9	5.3	5.0	4.3
25–44	6.2	8.4	6.9	8.7
45–64	16.8	24.0	18.8	24.6
65–84	75.2	84.2	77.3	86.6
85 and over	253.0	298.6	268.9	261.9
FEMALES				
All ages:				
Crude rate	12.7	19.5	13.9	20.6
Ages 10 and over:				
Crude rate	10.9	19.8	12.4	20.8
Standardized rate	12.3	15.1	12.4	15.8
Under 10	18.6	8.7	19.6	6.0
10–14	2.3	2.3	2.6	3.3
15–19	3.3	2.5	3.2	5.8
20–24	4.2	6.0	4.7	3.8
25–44	5.8	7.8	5.7	7.6
45–64	14.4	18.1	14.3	21.0
65–84	66.6	81.2	68.2	79.9
85 and over	253.8	283.0	242.3	279.6

Pneumonia is more prevalent among British born males and females at ages 25 to 84 than among natives. Among British males in Pennsylvania at ages 45–64, for example, there is a mortality from this cause of 343.5 per 100,000, but of only 166.0 among native Americans. Similarly, at ages 65–84, the death rates from pneumonia are 758.9 and 498.2 for the British and native born, respectively. Cancer is higher among British males from 45 to 84, and among British females at 25 to 84. Thus, there is a rate at ages 45–64 of 239.7 per 100,000 British males in New York, in contrast with 150.0 among native males; among British females, it is 360.9, while that of

TABLE XIII

DEATH RATES OF PERSONS BORN IN ENGLAND, SCOTLAND, AND WALES, FOR THE PRINCIPAL CAUSES OF DEATH, BY SEX AND AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	All causes		Tuberculosis of lungs		Cancer		Organic heart diseases		Pneumonia		Bright's disease		Violence excl. suicide	
	Rate per 1,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000	
	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.
MALES														
All ages	21.5	21.8	150.2	215.2	124.2	145.5	306.1	325.3	245.1	203.4	208.9	201.5	225.9	163.1
Under 10	11.0	7.0	....	23.4	....	....	....	....	122.4	163.8	....	....	204.0	164.4
10–14	2.7	3.7	....	36.9	....	....	....	110.6	....	....	....	....	161.2	128.7
15–19	4.4	5.8	120.3	128.7	94.4	....	60.3	32.2	99.2	32.2	....	....	166.4	114.4
20–24	6.3	8.7	181.8	191.5	119.8	60.3	67.6	94.7	99.4	14.3	19.8	....	217.6	138.9
25–44	8.4	8.2	151.5	240.5	21.6	13.9	69.4	94.7	243.5	99.4	43.3	343.3	219.1	158.9
45–64	24.0	24.6	165.3	268.9	153.3	239.7	340.8	373.1	758.9	701.7	1004.1	861.4	256.9	290.5
65–84	84.2	86.6	233.5	210.3	636.5	1297.1	1447.3	1673.1	2263.4	1443.3	3619.9	2061.9	452.5	824.7
85 and over	298.6	261.9	....	....	....	....	6334.9	4742.3	....	....	....	....	....	....
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....
FEMALES														
All ages	19.5	20.6	133.2	123.3	220.0	223.8	255.5	341.7	165.0	205.2	133.8	192.1	62.3	61.1
Under 10	8.7	6.0	41.6	23.2	23.2	....	....	23.2	124.8	46.4	....	....	83.2	....
10–14	2.5	3.3	....	....	....	....	43.2	146.7	....	....	....	....	....	....
15–19	5.8	5.8	84.4	64.0	26.1	....	43.2	32.0	120.6	96.0	....	15.2	....	....
20–24	6.0	7.8	180.4	161.5	83.1	67.8	63.3	62.5	63.3	55.1	46.0	49.9	23.0	21.0
25–44	7.1	7.6	160.4	184.4	215.0	360.9	217.0	205.6	100.8	99.7	200.3	230.5	69.7	57.6
45–64	18.1	21.0	112.2	92.1	315.0	360.9	1302.3	1337.3	615.8	495.5	838.0	271.9	271.9	258.8
65–84	81.2	79.9	153.7	130.3	668.9	928.9	3144.6	4276.3	2830.2	4111.8	1886.8	1644.7	3144.6	822.4
85 and over	253.0	270.6	214.6	....	....	....	....	....	....	....	....	....	....	....
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....

natives is but 287.4. Bright's disease is likewise more prevalent among British females at ages 45 to 84. The death rate from violence (excluding suicide) is higher in both states among British males 20 to 84 than among native Americans.

It is largely these same causes which are responsible for the disadvantage which the British born living in the United States exhibit when compared with their countrymen at home. For example, at ages 45–64, males in England and Wales had in 1911 a pneumonia rate of 150.7 per 100,000, as against 343.5 and 252.7 for British born males living in Pennsylvania and New York, respectively; and at the same age period (45–64) females have a pneumonia rate of 76.6 per 100,000 in England and Wales, contrasted with 160.9 and 199.7 for British born females living in Pennsylvania and New York. The facts for Bright's disease are even more striking. At ages 45–64, the rate for nephritis and Bright's disease was 116.1 per 100,000 males in England and Wales, while the figures for Bright's disease alone among British born males living in Pennsylvania and New York were 239.8 and 288.3, respectively. Deaths from accidental violence are also more frequent among the British in America; British born males aged 25–44 show rates of 219.1 and 138.8 per 100,000 in Pennsylvania and New York, in contrast with 59.8 for males of the same ages in England and Wales.

IRISH

Irish immigration into the United States reached its highest point as far back as 1850, the Irish being then 42.8 per cent (by far the largest single component) of the total foreign born in America. In recent decades, the Irish born have, with the Germans and British, declined in relative importance among the foreign stocks. In 1910, they were only 10.0 per cent of the total foreign born in this country. In Pennsylvania in 1910, there were 165,091 Irish born persons, comprising 11.5 per cent of the foreign born white and 2.2 per cent of the total white population. In New York State, the number of persons born in Ireland was 367,877; they formed 13.5 per cent of the total foreign born and 4.1 per cent of the total white population of the state. Table XIV presents death rates of Irish born

persons living in Pennsylvania and in New York, by sex and age, 1910:

TABLE XIV

DEATHS PER 1,000 WHITE POPULATION AMONG PERSONS BORN IN IRELAND AND AMONG NATIVE BORN OF NATIVE PARENTAGE, BY SEX AND BY AGE PERIOD. PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	Pennsylvania		New York	
	Native born of native parentage	Irish born	Native born of native parentage	Irish born
MALES				
All ages:				
Crude rate	14.2	40.6	15.9	40.2
Ages 10 and over:				
Crude rate	11.5	40.7	13.8	40.3
Standardized rate	12.8	23.6	13.8	25.9
Under 10	22.6	16.5	23.5	16.8
10–14	2.3	3.0	2.5	....
15–19	3.3	5.7	3.6	8.1
20–24	4.9	8.9	5.0	9.4
25–44	6.2	15.1	6.9	18.5
45–64	16.8	40.4	18.8	46.3
65–84	75.2	103.1	77.3	101.6
85 and over	253.0	301.6	268.9	286.1
FEMALES				
All ages:				
Crude rate	12.7	35.0	13.9	34.8
Ages 10 and over:				
Crude rate	10.9	35.0	12.4	34.9
Standardized rate	12.3	20.5	12.4	23.5
Under 10	18.6	29.2	19.6	10.4
10–14	2.3	....	2.6	4.1
15–19	3.3	2.5	3.2	3.9
20–24	4.2	3.6	4.7	4.1
25–44	5.8	10.2	5.7	12.0
45–64	14.4	35.1	14.3	40.7
65–84	66.6	104.2	68.2	107.4
85 and over	253.8	288.3	242.3	307.6

Table XIV shows that in this country a very high mortality exists among the Irish. Eliminating from consideration all age periods below 20, because of the small representation of the Irish immigrants at the younger ages, the Irish males show death rates very greatly in excess of the native stock; at ages 25 to 64, the rates are over two and one-half times higher. The same situation exists for females beginning with age 25.

Ages 10 and over, taken together, show crude rates of 40.7 and 40.3 for males in Pennsylvania and New York State,

TABLE XV

DEATH RATES OF PERSONS BORN IN IRELAND, FOR THE PRINCIPAL CAUSES OF DEATH, BY SEX AND BY AGE PERIOD, PENNSYLVANIA AND NEW YORK STATE, 1910

Sex and age period	All causes		Tuberculosis of lungs		Cancer		Organic heart diseases		Pneumonia		Bright's disease		Violence excl. suicide	
	Rate per 1,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000		Rate per 100,000	
	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.	Pa.	N. Y.
MALES														
All ages	40.6	40.2	342.8	589.3	209.2	237.6	557.5	560.9	530.0	451.5	399.2	471.4	357.9	305.9
Under 10	16.5	16.8	....	....	....	....	274.7	140.1	274.7	140.1	....	....	266.7	140.1
10–14	3.0	....	....	312.3	....	....	....	....	....	....	....	....	....	124.9
15–19	5.7	6.1	428.0	327.3	....	....	31.9	21.1	63.8	21.2	42.2	42.2	111.9	278.4
20–24	8.9	9.4	127.7	662.9	63.7	46.2	127.3	183.3	63.8	21.2	169.9	211.9	231.3	273.3
25–44	15.1	18.5	375.8	662.9	265.7	382.2	530.3	580.2	620.5	601.7	419.8	662.5	434.4	321.4
45–64	40.1	45.2	662.9	1035.3	638.7	1035.3	1706.7	2088.5	1253.2	1024.0	1146.0	1399.1	412.2	409.0
65–84	103.1	101.6	206.1	329.3	651.3	694.7	5800.5	5601.9	3088.2	1907.0	3532.2	2144.4	355.1	306.7
85 and over	301.6	286.1	....	357.6	232.0	1311.1	....	....	....	....	....	....	....	....
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....
FEMALES														
All ages	35.0	34.8	201.2	276.1	269.4	269.0	493.3	600.2	395.9	411.6	387.3	453.0	143.9	95.5
Under 10	29.2	10.4	....	138.1	....	....	291.5	129.5	583.1	129.5	....	....	291.5	129.5
10–14	4.1	4.1	65.6	185.5	....	....	63.6	....	....	138.1	63.6	....	....	23.2
15–19	3.6	3.9	121.6	167.7	....	....	....	16.8	30.4	22.4	15.2	11.2	....	11.2
20–24	7.5	7.7	235.3	353.4	96.3	88.2	90.9	100.3	60.9	100.3	121.6	134.1	60.4	104.7
25–44	10.2	12.0	294.1	353.4	385.6	455.9	636.4	634.0	446.0	512.0	431.6	636.1	118.5	104.7
45–64	35.1	40.7	140.9	192.1	657.5	684.2	1590.2	2212.1	1187.6	1831.3	1201.0	1888.6	496.5	306.7
65–84	104.2	107.4	148.6	....	1040.1	1207.7	4011.8	5797.1	2228.8	2886.6	2526.0	2576.5	1654.5	966.2
85 and over	288.3	307.6	....	....	....	....	....	....	....	....	....	....	....	....
Unknown	....	....	....	....	....	....	....	....	....	....	....	....	....	....

respectively, and 35.0 and 34.9 for females. These, when standardized for age, are reduced to 23.6 and 25.9 for males, and 20.5 and 23.5 for females. The rates are, therefore, nearly twice as high as those of the native stock.

An examination of the causes for these very unfavorable conditions (Table XV) shows, in exaggerated form, a situation not unlike that previously described for the German born population.

With regard to pulmonary tuberculosis, the Irish born are under a great handicap. At ages 25–44, for example, the rate for this cause among Irish males is, in each state, twice as large as for natives; thus, in Pennsylvania, the rate for Irish males is 375.8 per 100,000 compared with 185.2 for native born males, and in New York the corresponding figures are 662.9 and 352.0, respectively. At ages 45–64, the Irish disadvantage is even greater. Among females at the same ages, the disparity is somewhat less marked, although it is still present.

In both sexes at ages 25 to 84, the rates for pneumonia (all forms) are much higher among the Irish born. Irish males, 45–64, present rates of 620.5 and 601.7 in Pennsylvania and New York, while males born in the United States show but 166.0 and 189.6, respectively. Among females at corresponding ages, the situation is similar.

The facts relative to cancer, organic diseases of the heart, and Bright's disease may be summarized as follows: In the age periods 25–44, 45–64, and 65–84, which are the significant ages for these diseases, the Irish born, without exception, show higher specific death rates than the native born. This statement holds for both sexes and in both states. Deaths from violence (excluding suicide) are likewise more numerous among the Irish born.

In their own country, the mortality rates of the Irish present no such untoward conditions as they show in the United States. From ages 15 onward in the last censal year (1911), the rates for males were much lower than for the Irish in Pennsylvania and New York, the advantage at 25 to 64 being over 50 per cent.* For females after age 25 is reached, the situation is

* Forty-eighth (1911) and Forty-ninth (1912) Annual Reports of the Registrar-General for Ireland, pp. 150, 120–129.

much the same as for males. When we compare the rates for the important causes of death after 25, we find that almost without exception the Irish at home enjoy marked advantages. For example, Irish males at home aged 45–64 had, in 1911, a pneumonia rate of 163.2 per 100,000, which is in very marked contrast to the rates of 620.5 and 601.7 for Irish born males in Pennsylvania and in New York. Similarly, the pneumonia rate for Irish females (45–64) is 89.8 in their own country, as against 448.0 and 523.6 in Pennsylvania and New York. Even more striking are the figures for Bright's disease. At 65–84, Irish males at home show a mortality from this cause of but 115.3 per 100,000 as against the very high rates of 1146.0 and 1299.1 for Irish born males living in Pennsylvania and New York. For Irish females in their own country, the rate at 65–84 is only 63.8 per 100,000, an amazing contrast to 1201.0 and 1388.6 for Irish born of the same age in this country.* The mortality from organic heart disease at ages 65–84 is twice as high among the Irish living in America.

The foregoing figures for German, British, and Irish immigrants help to explain some of the features we noticed in our discussion of the general death rates in Table II. It will be remembered that at ages 25–44, the native born males of foreign or mixed parentage, that is, first generation Americans, showed in Pennsylvania a death rate of 12.3 per thousand, while the mortality of the foreign born was only 9.1; and in New York State, their rate was 14.3 per 1,000 as contrasted to 8.7 for the foreign born. At the next two age periods, the rates for these two classes of the foreign stock were very similar, and the native stock was at a great advantage.

We are now able to state the probable reasons for this peculiar relationship. In the age period 25–44, the predominating stocks which make up the native born of foreign parentage are the Germans, British, and Irish, whose death rates we have found are high. The foreign born group at the same age period, on the other hand, has large proportions of Italians, Russian Jews, and Austro-Hungarians. It is the low mortality of these races which, at ages 25–44, offsets the very

*The death rates for Bright's disease in Ireland are so remarkably low as to suggest some differences in classification procedure as a factor.

unfavorable conditions among the Germans, British, and Irish elements of the foreign born, and gives a net rate lower than that for the native born of foreign or mixed parentage, which contains no such reducing factor. But here this influence stops. The foreign born at 45–64 and 65–84 are predominantly Germans, British, and Irish; we see that their rates are almost identical with those for the native born of foreign or mixed parentage, composed, at these ages, of similar stock. The same reasoning applies to females. Here, the smaller excess of the first generation Americans over the foreign born at 25–44 is due to the fact that the rates of the two contrasting groups of the foreign born are more nearly equal than is the case among males.

We have examined each of the important nationality groups in the white population and have considered under each group the causes of death which characterize the mortality. It will now be profitable to reverse the viewpoint, summarizing briefly for each important cause of death the facts as to the various groups in the foreign born populations of Pennsylvania and New York. The causes of death will be considered in the order in which they stand in the International List of Causes of Death.

Tuberculosis of Lungs (*28, 29**).—The outstanding feature relative to pulmonary tuberculosis is the very unfavorable position of the Irish. Both sexes suffer extraordinarily from this disease during the greater part of life (25 to 84). At 25–44, the rates for Irish males are twice as high as for natives, and in the age period 45–64 the excess is even greater. The death rate among Irish males from tuberculosis continues high even at the advanced ages. The facts with regard to the Irish in the two states studied, are very different indeed from those in the native country, both as to the high rates obtained and the general configuration of the mortality curve. German and British males also show higher tuberculosis rates than the native born at the older ages. On the other hand, the Italians, Russians, and Austro-Hungarians present comparatively low tuberculosis death rates. At most of the age periods they are even lower than for the native born. Ital-

*International List of Causes of Death, 2nd Decennial Revision, 1909.

ian females in New York show a striking exception to the usual rule in that their rates are higher than those for males, especially in early life. Otherwise, there are no important differences in the several race groups with reference to this disease.

Cancer (*39–45*).—Practically every foreign race group shows higher cancer rates than do the native born. Italian males and females offer the only clear-cut exceptions. At the age period 45 to 64, foreign born males show rates from 50 to 100 per cent higher. The conditions among the Irish are strikingly bad. Among females at ages 45–64, the Germans and the British also show higher rates than do the native born, but the excess is not as marked as it is among the Irish.

Organic Diseases of the Heart (*79*).—Again the Irish present the highest rates, followed by the British and the Germans. The conditions prevailing among those from Austria-Hungary, Russia, and Italy are, on the whole, very favorable with regard to this disease. It is very difficult to understand the reason for the aberrant death rates among the Irish in Pennsylvania and New York, for they are so much higher than are those for the native stock and for the Irish in their own country.

Pneumonia (*all forms*) (*91, 92*).—From ages 45 to 84, the rates of the native born are much the lowest. The Irish are again under the greatest handicap, their rates being about three times as high at ages 45–64. The rates for Italians are very unfavorable also at ages 45 to 84. The disadvantage of the Germans, British, and Russians is less among females than among males. The position of the Austro-Hungarians is very much the same as the native born at 25 to 64.

Bright's disease (*120*).—Again, we must record the very unfavorable position which the Irish occupy. From 25 to 84 years of age, the rates for this nationality are about 100 per cent higher than for the native born; among females, the excess is even greater. At ages 45 to 84, the rates from Bright's disease are high for Austro-Hungarians, Russians, Germans, and British. The position of the Italians is quite favorable.

Violence (*excluding suicide*) (*164–186*).—Deaths from this cause are largely from accident, and we find, of course, that the positions of the several race groups are determined by

the extent to which they engage in occupations that expose them to such dangers. The figures are especially striking for Pennsylvania where large numbers of immigrants find employment in mills and mines. Males of all the important foreign groups show very high rates from this cause, the worst conditions prevailing among the Austro-Hungarians, followed by the Irish and the Italians.

SUMMARY

1. Of the three main groups of the white population in Pennsylvania and in New York, (a) native born of native parents, (b) native born of foreign or mixed parentage, and (c) foreign born, the first has the lowest mortality. This is true for both sexes and for virtually every age period, but is most marked at the adult ages.

2. The foreign born, and the native born of foreign or mixed parentage, agree much more closely with each other than with the native stock. An interesting exception presents itself, however, at ages 25–44, at which period the foreign born have a great advantage over the native born of foreign or mixed parentage. The reason for this is the predominance of the Irish, German, and British stocks among the first generation Americans at this age period. After age 45, these two groups of the foreign stock are of the same racial extraction, and their death rates are in very close agreement.

3. The death rates of the component groups among the foreign born vary considerably. The Austro-Hungarians, Russians, and Italians present altogether favorable conditions, while the British, Germans, and Irish show death rates very greatly in excess. This is especially true of the Irish, whose mortality is about double that of the native stock. The rates for the Germans, British, and Irish are much higher in America than in their own countries. Pulmonary tuberculosis, pneumonia and the degenerative diseases including heart disease, Bright's disease, and cancer are largely responsible for this unfavorable mortality.

4. The findings of the previous study for New York State are confirmed. The unfavorable conditions of life and work among foreign races to which attention was directed in the

study for New York are found to prevail in Pennsylvania as well. The facts emphasize the necessity for special public health work for the people of foreign origin. The much more favorable economic conditions under which they live in the United States than in their own countries should result in lower death rates. But in several instances, we found that this does not prevail; the facts indicate, on the whole, deterioration rather than improvement. Is it possible that our immigrants are not representative of the best in their native countries? It has often been supposed that the immigrants comprised the most vigorous among their own people; the results, however, do not confirm this impression, but suggest many questions for further inquiry.

5. It is very important that a study similar to this one be carried out as soon as the results of the 1920 census are available, to determine whether any differences of importance have appeared in the interval of ten years.

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